Britz 113511A

IN THE CLAIMS:

1. (Currently Amended) A terminal in a free-space wavelength duplexed system comprising ~~first and second terminals, the first terminal including~~:

a telescope having an equipment end and a free-space end that is adapted to carry free-space, wavelength duplexed, communication;

an optical splitter having a first port connected said equipment end of said telescope;

an optical transmitter for generating an optical signal at a first wavelength, coupled to a second port of said optical splitter; and

an optical receiver coupled to a third port of said optical splitter having ~~a telescope,~~ an optical-to-electrical converter and an optical amplifier coupled between said optical splitter ~~the telescope~~ and the optical-to-electrical converter.

2. (Currently Amended) The system of claim 1, wherein the optical receiver further includes a filter, preceding said optical-to-electrical converter for passing an optical signal of a second wavelength that is different from said first wavelength ~~first terminal further includes an optical splitter coupled between the optical transmitter, the telescope and the optical amplifier~~.

3. (Currently Amended) A free-space communication system comprising at least two terminals as defined in claim 1, characterized in that, the free-space ends of said two terminals exchange optical signals via free space ~~The system of claim 1, wherein the second terminal includes:~~

~~a second optical transmitter to transmit an input signal; and~~

~~a second optical receiver having a second telescope, a second optical-to-electrical converter and a second optical amplifier coupled between the second telescope and the second optical-to-electrical converter~~.

4. (Currently Amended) The terminal ~~system~~ of claim 1, wherein:

the optical transmitter includes

plural lasers sources, each laser source modulating an input signal onto a

wavelength that is distinct from a wavelength of each other laser source to form a plurality of different-wavelength optical signals; and

an element that combines said plurality of different-wavelength optical signals and applies result the combined plurality of different-wavelength optical signals to said optical splitter; and

the optical receiver includes a WDM demultiplexer preceding said optical-to-electrical converter ~~3, wherein the second terminal further includes a second optical splitter coupled between the second optical transmitter, the second telescope and the second optical amplifier~~.

5. (Currently Amended) The ~~system~~ terminal of claim 1, wherein:

the optical transmitter includes plural lasers sources, each laser source modulating an input signal onto a wavelength that is distinct from a wavelength of each other laser source; and

the telescope includes a first part to combine the output of the plural laser sources into a multi-wavelength beam and a second part to optically separate the multi-wavelength beam into plural co-parallel and spaced apart beams, the telescope projecting the plural co-parallel and spaced apart beams toward the second terminal.

6. (Currently Amended) The system of claim ~~1~~ 3, wherein the optical transmitter of a first terminal of said two terminals includes:

an electrical converter to convert a serial bitstream into plural parallel blocks of data;

an FEC encoder, bit interleaver and laser source for each parallel block of data, each laser source modulating the interleaved FEC encoded parallel block of data on a wavelength distinct from a wavelength of each other laser source; and

an optical combiner to combine an optical signal from each laser source.

7. (Original) The system of claim 6, wherein the optical transmitter further includes a multiplexer to combine plural input signals into the serial bitstream.

8. (Currently Amended) The free space system of claim 6, wherein the telescope of said first terminal projects an output of the combiner toward ~~the~~ a second terminal of said two terminals.

9. (Original) A free space wavelength duplexed system comprising first and second terminals, the first terminal including:

a telescope; and

an optical transmitter in which plural electrical signals are electrically multiplexed together, the multiplexed signal being converted to an optical signal and optically amplified, the amplified optical signal being projected through the telescope into free space toward the second terminal.

10. (Original) A method comprising steps of:

receiving a received optical signal through a telescope;

diverting the received optical signal in an optical splitter into an optical amplifier; and

transmitting a transmit optical signal through the optical splitter to the telescope.

11. (Original) A method comprising steps of:

receiving plural received optical signals through a telescope;

diverting the plural received optical signals in an optical splitter into an optical amplifier;

separating the plural amplified optical signals by wavelength; and

transmitting plural transmit optical signals at distinct wavelengths through the optical splitter to the telescope.

12. (Original) A method comprising steps of:

converting plural electrical signals into plural optical signals at distinct wavelengths;

combining the plural optical signals;

optically amplifying the combined optical signal; and

projecting the optically amplified signal through a telescope into free space toward another terminal.

13. (Original) The method of claim 12, further comprising steps of:
receiving the free space optical signal through another telescope;
capturing the received optical signal in a fiber;
optically amplifying the captured optical signal; and
demultiplexing the amplified optical signal according to wavelength.

14. (New) The terminal of claim 5 where said second part optically separates the multi-wavelength beam into plural co-parallel and spaced apart beams, with each carrying the same signal.

15. (New) The terminal of claim 4 where at least some of the input signals that are modulated signals up to said distinct wavelengths are derived from a given input signal in accord with a diversity technique

16. (New) The terminal of claim 4 where said result that is developed by said element that combines comprises said different-wavelength signals that point to substantially a common target, but are spatially separated by each other so as to traverse a different free-space path.